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(028248-2301)

REMARKS

The present invention relates to novel benzoxazine compounds containing at least one polymerizable moiety. These compounds and their compositions have exceptional performance properties, for example, the ability to increase adhesion at interfaces within microelectronic packages, particularly to metallic surfaces, due to their unexpected low shrinkage on cure and low coefficient of thermal expansion (CTE) properties.

By the present communication, Claims 1, 2, 6 and 12 are amended to define Applicants' invention with greater particularity. These amendments do not introduce new matter as they are fully supported throughout the specification and claims as originally filed. Claims 5, 7, 8, 11, 13 and 14 are cancelled herein without prejudice. Applicants reserve the right to file divisional application(s) to any cancelled subject matter. Claims 20-35 were previously withdrawn from consideration. Accordingly, Claims 1-4, 6, 9, 10, 12 and 15-35 are still pending in this application, with claims 1-4, 6, 9, 10, 12 and 15-19 under active consideration. The present status of all claims in the application is provided in the listing of claims presented herein beginning on page 2.

Rejection of Claims 1-19 under 35 U.S.C. § 112, second paragraph

The rejection of claims 1-19 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, is respectfully traversed.

The Examiner's assertion that a comma is missing between the term "alkylene" and "oxyalkylene" in the definition of Sp in claims 1, 3-8, 18 and 19 has been obviated by the amendments submitted herewith.

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The Examiner's assertion that if "m" is optional in claim 1, then no " $\text{Ar}(\text{R}_n)(\text{Q})_n$ " would be present has been obviated by the amendments submitted herewith. As amended, claim 1 recites "m is 1 or 2."

The Examiner's assertion that the definition of R, R' and R'' in claim 1 allegedly lacks clarity has been obviated by the amendments submitted herewith.

Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Rejections of Claims 1-19 under 35 U.S.C. §§102(b) and 103(a)

The rejection of claims 5, 7, 8, 11, 13 and 14 is rendered moot by the cancellation of these claims herein.

The rejections of claims 1-4, 6, 9-10, 12 and 15-19 under 35 U.S.C. §102(b), as allegedly being anticipated by, or in the alternative, under 35 U.S.C. §103(a), as allegedly being obvious over: U.S. Patent No. 5,543,516 issued to Ishida *et al.* ("Ishida '516"); the Journal of Applied Polymer Science (1998), 69, 2559-2567 article by Ishida *et al.* ("Ishida *et al.*"); the Composite Interfaces (2001), 8 (5), 355-366 article by Chirachanchai *et al.* ("Chirachanchai"); the Journal of Applied Polymer Science (2000), 75, 1054-1067 article by Perrin *et al.* ("Perrin"); the Journal of Heterocyclic Chemistry (1971), 8(4), 611-618 article by Reynolds *et al.* ("Reynolds"); and the Journal of Organic Chemistry (1962), 27, 2749-2753 article by Fields *et al.* ("Fields"), are respectfully traversed.

Ishida '516

Applicants' invention, as defined for example by claims 1-4, 6, 9, 10, 12 and 15-19, distinguishes over Ishida '516 at least by requiring a substituted benzoxazine compound having one or more defined polymerizable substituents thereon. Ishida '516 does not teach, disclose or suggest the compounds of claims 1-4, 6, 9, 10, 12 and 15-19. Indeed, none of the benzoxazine compounds disclosed in this patent are substituted with any of the defined polymerizable

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moieties required by the present claims. Nor does Ishida '516 provide any motivation to modify the compounds taught therein to arrive at the claimed benzoxazine compounds. Absent a teaching or suggestion in Ishida '516, one of skill in the art would not have been motivated to modify the teachings of this patent to arrive at the claimed compounds.

Furthermore, as described in the specification and in Examples 18-20 of the application, the compounds of claims 1-4, 6, 9, 10, 12 and 15-19 have unexpected properties that are not taught or suggested by Ishida '516. For example, the claimed compounds and their compositions show increased adhesion at interfaces within microelectronic packages, particularly to metallic surfaces, due to their low shrinkage on cure and low coefficients of thermal expansion (CTE). Ishida '516 does not teach or suggest that the compounds taught therein would have such properties.

It is respectfully submitted that Ishida '516 neither anticipates, nor renders obvious the present claims. Accordingly, reconsideration and removal of these rejections are respectfully requested.

Ishida *et al.*

Applicants' invention, as defined for example by claims 1-4, 6, 9, 10, 12 and 15-19, distinguishes over Ishida *et al.* at least by requiring a substituted benzoxazine compound having one or more defined polymerizable substituents thereon. Ishida *et al.* does not teach, disclose or suggest the compounds of claims 1-4, 6, 9, 10, 12 and 15-19. Indeed, none of the benzoxazine compounds disclosed in this publication are substituted with any of the defined polymerizable moieties required by the present claims. Nor does Ishida *et al.* provide any motivation to modify the compounds taught therein to arrive at the claimed benzoxazine compounds. Absent a teaching or suggestion in Ishida *et al.*, one of skill in the art would not have been motivated to modify the teachings of this publication to arrive at the claimed compounds.

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Furthermore, Ishida *et al.* do not teach or suggest any of the unexpected properties observed for invention compounds, as described above.

It is respectfully submitted that Ishida *et al.* neither anticipates, nor renders obvious the present claims. Accordingly, reconsideration and removal of these rejections are respectfully requested.

Chirachanchai

It is respectfully submitted that Chirachanchai is not an effective reference for citation under 35 U.S.C. §102(b) against the instant claims. Chirachanchai was published October of 2001. In contrast, the instant application was filed November 13, 2001, less than one year after Chirachanchai. 35 U.S.C. §102(b) entitles a person to a patent unless the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country more than one year prior to the date of application for patent in the United States. Therefore, Chirachanchai is not an effective reference for citation in the instant application under 35 U.S.C. §102(b). Therefore all rejections based in whole or in part on Chirachanchai must fall.

Perrin

Applicants' invention, as defined for example by claims 1-4, 6, 9, 10, 12 and 15-19, distinguishes over Perrin at least by requiring a substituted benzoxazine compound having one or more defined polymerizable substituents thereon. Perrin does not teach, disclose or suggest the compounds of claims 1-4, 6, 9, 10, 12 and 15-19. Indeed, none of the benzoxazine compounds disclosed in this publication are substituted with any of the defined polymerizable moieties required by the present claims. Nor does Perrin provide any motivation to modify the compounds taught therein to arrive at the claimed benzoxazine compounds. Absent a teaching or suggestion in Perrin, one of skill in the art would not have been motivated to modify the teachings of this publication to arrive at the claimed compounds.

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Furthermore, Perrin does not teach or suggest any of the unexpected properties observed for invention compounds, as described above.

It is respectfully submitted that Perrin neither anticipates, nor renders obvious the present claims. Accordingly, reconsideration and removal of these rejections are respectfully requested.

Reynolds

Applicants' invention, as defined for example by claims 1-4, 6, 9, 10, 12 and 15-19, distinguishes over Reynolds at least by requiring a substituted benzoxazine compound having one or more defined polymerizable substituents thereon. Reynolds does not teach, disclose or suggest the compounds of claims 1-4, 6, 9, 10, 12 and 15-19. Indeed, none of the benzoxazine compounds disclosed in this publication are substituted with any of the defined polymerizable moieties required by the present claims. Nor does Reynolds provide any motivation to modify the compounds taught therein to arrive at the claimed benzoxazine compounds. Absent a teaching or suggestion in Reynolds, one of skill in the art would not have been motivated to modify the teachings of this publication to arrive at the claimed compounds.

Furthermore, Reynolds does not teach or suggest any of the unexpected properties observed for invention compounds, as described above.

It is respectfully submitted that Reynolds neither anticipates, nor renders obvious the present claims.

Fields

Applicants' invention, as defined for example by claims 1-4, 6, 9, 10, 12 and 15-19, distinguishes over Fields at least by requiring a substituted benzoxazine compound having one or more defined polymerizable substituents thereon. Fields does not teach, disclose or suggest the compounds of claims 1-4, 6, 9, 10, 12 and 15-19. Indeed, none of the benzoxazine compounds disclosed in this publication are substituted with any of the defined polymerizable moieties

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required by the present claims. Nor does Fields provide any motivation to modify the compounds taught therein to arrive at the claimed benzoxazine compounds. Absent a teaching or suggestion in Fields, one of skill in the art would not have been motivated to modify the teachings of this publication to arrive at the claimed compounds.

Furthermore, Fields does not teach or suggest any of the unexpected properties observed for invention compounds, as described above.

It is respectfully submitted that Fields neither anticipates, nor renders obvious the present claims.

CONCLUSION

In view of the above amendments and remarks, the present application is respectfully submitted to be in condition for allowance. Accordingly, reconsideration and favorable action with respect to the pending claims is respectfully requested. In the event any issues remain to be resolved in view of this communication, the Examiner is invited to contact the undersigned at the number given below so that a prompt disposition of this application can be achieved.

Respectfully submitted,

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